



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

### REGION 8

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## U.S. EPA Region 8 – Libby Asbestos Site Spatial Data Guidance

### Background

Historically information pertaining to the asbestos Superfund site in Libby was associated with an owner and then subsequently an address rather than a cadastral based geographic area. Information for the Troy area, on the other hand, was associated with a cadastral based geographic area but not necessarily a tax parcel. These two different approaches have made site-wide data management extremely challenging, necessitating the need for a new data management approach, one that ties all information back to a common geographic base.

Ordinarily this common geographic base would be tax parcels, legally defined taxable land units with a unique tax identifier assigned by the county assessor. However, in Lincoln County unique tax parcels may consist of two or more discontinuous units of land, or in the case of condominiums and trailer parks may contain multiple ownership units for the same parcel of land. In addition portions of right-of-ways or other non-privately held land have been and will need to be divided into smaller units encompassing areas where assessment and removal activities are warranted – alley ways in both Libby and Troy are a prime example. For these reasons the concept of geounits has been employed.

A geounit is cadastral based and is considered the common spatial unit for the Libby Asbestos NPL site. In most cases a geounit is the same as a tax parcel or right-of-way such as a street or water. The exceptions to this are:

1. Areas of right-of-ways where a cleanup action has occurred necessitating that a smaller polygon be split out from the larger right-of-way polygon resulting in a new geounit.
2. Situations where two or more adjacent geounits owned by the same party where a residence is found to exist on only one of the geounits resulting in the geounits being merged into one geounit.
3. Land transactions that occur unbeknownst to the Libby Asbestos Project that cause a tax parcel to be split or merged resulting in the geounits no longer matching the tax parcels.

This common spatial unit allows documents and data pertaining to an area of land to be associated with that area of land through the use of a unique identifier referred to as a geounit ID.

The term property has been used loosely to refer to an address, tax parcel, right-of-way, geounit, trailer space, apartment, or assessment unit. Under the new data management approach it is explicitly defined as a unit of space for EPA assessment purposes and is assigned a unique identifier known as an AD- number. To accommodate legacy data this assessment unit may or may not correspond to parcels and therefore geounits

and may have one, multiple, or no addresses. One property can be composed of one geounit or in some rare legacy situations might possibly be composed of multiple geounits. Multiple properties may likewise consist of the same geounit. In most cases one geounit equals one tax parcel which equals one property.

## Data Life Cycle Overview

Prior to the 2012 field season contractors will be provided an ESRI file geodatabase (*LibbyAsbestos.gdb*) containing the most current geounits for Lincoln County and any associated data. Each contractor shall use this geodatabase as their working copy of the parent SDE geodatabase housed at the EPA Region 8 offices in Denver. When edits are made to any of the parent layers in SDE, as detailed in the process later in this document, a new geodatabase will be provided to each contractor. The receiving contractor shall then replace their previous version of the geodatabase with the newly updated one.

## Geodatabase Contents

These feature classes and tables are the most current EPA data available as of March, 2012. All data have metadata and a spatial reference of geographic, decimal degrees, NAD 83.

**ADM\_GEOUNITS\_MT\_LINCOLN\_COUNTY** – geounit feature class. Relates to the address and edits table using the GEOUNIT\_ID field.

**SIT\_NPL\_BNDS** – NPL site boundary feature class.

**SIT\_OUS** – operable units feature class.

**SIT\_SITE\_BNDS** – site boundary feature class. Same as the UDIG boundary.

**SIT\_SITE\_FEATURES** – site-specific features feature class.

**SIT\_REMOVAL\_ZONES** – removal zones for OU 4 & 7 feature class.

**TBL\_EDITS\_MT\_LINCOLN\_COUNTY** – edits table. Relates to the geounit feature class using the GEOUNIT\_ID field.

## Spatial Data Maintenance Process

The maintenance process begins with an edit or edits to the geounit feature class. There are four main types of edits that will potentially need to be made to geounits:

1. Attribute modification – only an attribute is modified. No geometry changes required.
2. Geometry modification – only the boundary or position of an existing geounit is modified. This does not require a change to the geounit ID. Other attributes may or may not require modification.
3. Split – a geounit is divided into two or more geounits. This results in one or more new geounit IDs being created. This may also involve a more general geometry modification. Other attributes may or may not require modification. Should the contractor for OU4 initiate a split they may assign a unique sequential geounit ID beginning with 400,000. Example: 400,001, 400,002, etc... Should the contractor for OU7 initiate a split they may assign a unique sequential geounit ID beginning with 700,000. Example: 700,001, 700,002, etc...
4. Merge – two or more geounits are merged into one larger geounit. This results in one or more existing geounit IDs being deleted. This may also involve a more general geometry modification. Other attributes may or may not require modification.

There are two main components to the spatial data maintenance process: The data inputs or mechanisms that trigger the need for an edit and the data processing/edits *(the steps below are intended to be a general outline and not an all inclusive list of procedures)*.

## **Data Inputs Procedures**

### Cadastral Survey

1. A survey of one or more properties is conducted by a contracted land surveyor.
2. The survey is provided by the contracted land surveying company to the PRI/ER and EPA contact as an AutoCAD DWG file.

### Field Crews (Applies to CDM Smith, PRI/ER, & TetraTech)

1. Field operations require geounits to be split or merged based on the official geounit definition.
2. Field personnel discover inaccurate or outdated information while conducting field work.
3. A detailed description of the issue and the creation of any new geounit ID shall be provided in a running document to the ESAT and EPA contact along with any supporting documentation such as copies of plats or property surveys.

### Office Research (Applies to CDM Smith, PRI/ER, & TetraTech)

1. Office personnel in Libby or elsewhere discover inaccurate or outdated information while using existing data or there is a situation where an issue is brought to their attention.
2. A detailed description of the issue shall be provided in a running document to the ESAT and EPA contact along with any supporting documentation such as screen shots.

## **Data Processing Procedures**

### CAD (PRI/ER)

1. Using AutoCAD reproject the DWG file to Geographic Coordinate System, decimal degree units, NAD 83 datum.
2. Define the projection of the DWG file using ArcGIS 10 to create the associated .prj file.
3. Ensure that the geounit or geounits are attributed as PROP\_BOUNDARY in the LAYER field.
4. Ensure the geounit forms a closed polygon.
5. Ensure that vertices of the geounit match identically the vertices of adjacent geounits that were previously surveyed (may require use of ArcGIS 10). If they do not, PRI/ER shall determine the cause of the discrepancy and work towards resolution in coordination with the EPA if necessary.
6. Under no circumstance is PRI/ER to arbitrarily move the location of a geounit or vertices in the DWG file.
7. Complete any other quality control step deemed necessary to ensure the spatial accuracy of the data.
8. PRI/ER shall email the DWG file to the ESAT and EPA contacts once the file has passed the PRI/ER quality control checks.
9. This entire process should not take more than 24 hours to complete. If a particular set of edits requires more than 24 hours, then the EPA contact is to be notified within the 24 hour period.

## GIS (ESAT)

1. Convert the geounit(s) from the DWG file or other source material to a feature class.
2. Make topological the feature class.
3. Replace the old geounit(s) with the new geounit(s).
4. Edit the adjacent geometries and fix topology as needed.
5. Update geounit attribution as appropriate. Add or delete geounit IDs. If adding a new geounit ID, the next highest value in the sequence should be used.
6. Update the TBL\_EDITS\_MT\_LINCOLN\_COUNTY table, documenting the edit that was just made.
7. If any of the geometry edits were to lines that are coincident with lines in the SIT\_NPL\_BNDS, SIT\_OUS, SIT\_SITE\_BNDS, SIT\_SITE\_FEATURES, or SIT\_REMOVAL\_ZONES feature classes, then the affected feature classes shall also be modified as appropriate. That is to say, if the geounit edits were to lines that are used to define features in other feature classes, then those edits will need to be cascaded to all affected feature classes.
8. ESAT shall implement a series of quality control checks to ensure data integrity.
9. If ESAT encounters an issue with the data, they shall work with the appropriate party directly to resolve the problem.
10. ESAT shall email a new *LibbyAsbestos.gdb* file geodatabase to the EPA, PRI/ER, CDM Smith, TetraTech, and ORATOR contacts.
11. ESAT shall notify the CDM Smith and EPA contact of the geounit ID changes documented in the TBL\_EDITS\_MT\_LINCOLN\_COUNTY table.
12. ESAT shall ensure that data edits get posted to ORATOR and the new geometry is being correctly reflected in the *Property Status Viewer*.
13. All edits received between Monday and Friday will be processed and a new geodatabase delivery provided to all parties by close of business the following Tuesday.

## Response Manager (CDM Smith & TetraTech )

1. Any changes to geounit IDs that are received by CDM Smith (OU4) or Tetra Tech (OU7) shall be propagated appropriately throughout *Response Manager*.
2. CDM Smith and TetraTech shall ensure that the property status of the edited geounits is correctly reflected in the *Property Status Viewer* within the timeframe of the *Response Manager GIS View* replication cycle.
3. This process should not take more than 24 hours to complete. If a particular set of edits requires more than 24 hours, then the EPA contact is to be notified within the 24 hour period.

## **Contacts**

Agency/Company	Name	Role	Phone	Email
EPA	John Wieber	Primary	(303) 312-6118	wieber.john@epa.gov
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### Spatial Data Maintenance Process Diagram

